



Use and attitude towards Learning Management Systems (LMS) in Saudi Arabian universities

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This paper was designed to establish the relationships between faculty members' use and attitude towards Learning Management Systems (LMSs). LMSs have been adopted in various educational institutions due to their numerous applications and functionalities to improve pedagogy. As a result, faculty members are urged to utilise them for enhancing teaching and learning practices. Underpinning this study was a questionnaire distributed to 222 faculty members in six universities. Cross-tabulation in a bar graph and chi-square test were conducted to verify observed differences. The findings revealed that older generation (over 40 years) tended to use LMS for many of their teaching activities than the younger counterparts. LMS was not actively used for most teaching purposes. Statistically significant association existed between resources organisation via LMS and restriction level ($\chi^2(12) = 24.890, p = 0.015$). Attitude of faculty members who do not use LMS in pedagogy differ from those who use it for some and most teaching activities in terms of online examination and social media. Evaluations of personal and institutional experiences of LMS tools determine use and attitude.

Keywords: learning management system, teaching and learning activities, personal experiences, technological resources

INTRODUCTION

Learning Management System (LMS) has a variety of applications and now almost all universities around the world compel lecturers/faculty members to use it as part of institutional teaching and learning practices. Its definition encompasses the provision of subject and pedagogical management tools for delivering online teaching and learning activities (Kamal, 2013; Coates, James, & Baldwin, 2005). The

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rationale behind adoption and usage of LMS can be best understood by its functionalities simply because it has become a complimentary medium for course-content delivery in both blended learning environments and completely online learning environments. As indicated in recent studies, LMS allows students to access course information anywhere and anytime, according to their preferences (Asiri, Mahmud, Abu Bakar, & Mohd Ayub, 2012; Al-Busaidi & Al-Shihi, 2010). LMS also provides a medium for assignment marking, handout note making, and uploading and downloading (Asiri et al., 2012; Govindasamy, 2001). Greater communication between students within a class and the teacher through multi-modal methods of communication is allowed via the use of LMS. Such modes of communication include one-to-many forum opportunities in the form of social media (Chan, 2009).

Most LMSs such as Moodle, Blackboard, JUSUR, and Desire2Learn (among others) are also underpinned by some type of pedagogical affordance that offers a unique teaching experience beyond traditional 'one-to-one' and 'face-to-face' teaching (Govindasamy, 2001). The utilisation of LMS for academic purposes aid faculty members and institutions to save time and money by providing online assessment methods through proctored exams and tests as well as organising resources. These and other functionalities of LMS enhance pedagogical processes in a modern manner to face new education demands of the information societies (Hernandez-Ramos, Martinez-Abad, Garcia-Penalvo, Herrera Garcia, & Rodriguez-Conde, 2014). LMS and its broader component, Information and Communication Technology (ICT), is needed in higher education institutions to serve as an instrument in learning processes, a tool for information processing and implicit learning content (Hernandez-Ramos et al., 2014; Teo & Noyes, 2011; Al-Siraihi AL-Harbi, 2011).

However, despite the aforementioned benefits of LMS usage and ICT in general and the fact that LMS has been in full force over a decade ago, Saudi Arabia is one specific context in which LMS adoption and usage has been met with many barriers rooted in cultural and moral discourses (Aljaloud, 2012). There are many individuals that have not adopted it fully in their teaching endeavours (Aljaloud, 2012). For this reason, understanding that Saudi Arabia sits as 'laggards' and are quite conservative and cautious of new technologies may indicate why it is relevant to understand their current use and attitude towards LMS. Many implementation barriers have been identified in various studies. One of such barriers as pointed out by Aljaloud (2012) was lack of technical skills from the faculty members which the researchers of this study argue may be linked to their attitude towards LMS usage. Cigdem and Topcu (2015, p.23) made a case that instructors or faculty members "play an important role in specifying the effectivity, success or inefficacy, and

State of the literature

- LMS usage serves as a medium to stimulate pedagogical processes by blending traditional learning practices and online learning environments.
- It enhances learning processes, offers greater communication between lecturers and students, enables information processes, and saves time and money through unique teaching experiences in online exams and resource organisations.
- Adoption and usage of LMS in Saudi Arabia has been marked with various barriers in relation to implementation.

Contribution of this paper to the literature

- To adopt and use any technology including LMS requires faculty members to internalise it based on their ingrained attitude on perceived usefulness. It influences their intentions and experiences of using LMS for greater pedagogical discourse.
- Institutional stand on LMS promotion compel older generation to use LMS in many teaching activities. Younger generation attitude differs with regards to LMS usage for some teaching activities. Successful LMS implementation requires stakeholders understanding of the relationship between various LMS related variables as a benchmark to promote positive attitudes and effective use.
- Irrespective of personal experiences with LMS, faculty members expect LMS teaching handouts to be made available to students before lectures. Attitudinal divide exist with regards to LMS course organisations and restrictions, usage of LMS for online organisation and as a social media tool.

adoption of the e-learning systems so predicting instructors' behavioural intention to use LMS is essential prior to its adoption". It is to this regard that faculty members' attitude towards use of LMS forms the crux of the study.

The attitude of faculty members within institutions towards LMS use for teaching endeavours is hypothesised to be context specific, depending on the type of LMS and the sociocultural factors of the country, the institutions, and personal experiences of the faculty members. For example, in Sweden, a study indicated that the 'perceived ease-of-use hypothesis' developed by Rogers (2003) was not supported, but that for faculty members, cost and benefit were more important (Garrote & Pettersson, 2007). Other studies in Saudi Arabia have rejected the hypothesis that LMS adoption was based on the complexities of the LMS system and faculty members believing that it provided no pedagogical benefit (Coates, James, & Baldwin, 2005; Govindasamy, 2001; Dooley, 1999; Davis, 1989). Interestingly, one of the major concerns was that LMS may not provide benefits based on time and cost invested (Green, 2013). Various international studies have also noted that despite the fact that many developed countries have fully incorporated ICT in their education system, the impact has not been what they had hoped for (Fathema, Shannon, & Ross, 2015; Hernandez-Ramos et al, 2014; Wang & Wang, 2009).

Hence, it is important to ascertain if faculty members' attitudes and use of LMS are dependent on the context of LMS variables such as age, personal experiences, type of LMS, use of LMS for resources and handout note making, etc. in their specific university, within a specific country. This is essential because a 'one-size-fits-all' approach to researching LMS adoption and usage may not be appropriate (Garrote & Pettersson, 2007). On this note, this study looks into the faculty members' attitude towards LMS usages by establishing the relationship between various LMS variables and personal experiences for academic purposes with context in mind. The authors argue that for LMS to make meaningful impact by improving educational experiences in any institution to benefit students as well as lecturers, it hinges on more effective use as a result of positive attitude towards it. This is because an information system generally depends on user attitude, participation and satisfaction (Motaghian, Hassanzadeh, & Moghadam, 2013; Wang & Wang, 2009).

LITERATURE REVIEW

Implementation challenges of LMS

Universities' responsibilities include the provision of infrastructure by rolling out LMS hardware and softwares. These had been found to be growing in most institutions across the world due to heavy investment in Information Communication Technology (ICT) or e-learning equipments (Cigdem & Topcu, 2015; Al-Harbi, 2011; Mtebe & Raisamo, 2014). The aim has been that ICT and its related attributes such as LMS has the potential to transform learning and instructional forms in ways that extend beyond the efficient delivery. It has been reported that educational institutions' ability to ensure that LMS is effective and easy to use with high functionalities determines its successful deployment (Cigdem & Topcu, 2015). Meanwhile, studies argue that stock of ICT components alone do not lead to educational success unless they are put into use towards such purposes (Assarch & Bidokht, 2011; Mtebe & Raisamo, 2014). The use of ICT has been met with implementation challenges in many countries and institutions. Hussein (2011) and Aljaloud (2012) both identified the institution and faculty members as part of the main barriers to the implementation of LMS training courses. The difficulties in implementing LMS are generally concerned with 'uncertainties' about the technology. Dooley (1999) suggested five key barriers affecting the adoption and use of new technologies. These include the necessity of technical support and

service; pedagogical and administrative barriers; training and professional development for users; infrastructural issues of availability, and the cost of all such components (Dooley, 1999). As argued, innovations often fail in the educational sector because of several indicators. First, user attitudes and adoption is often more difficult than anticipated, either because of the cost, user patience or timing issues (Mtebe & Raisamo, 2014; Dooley, 1999). Second, technical supporters leave after implementation of the innovation or they become uninterested in it. Third, users may have no prior exposure to the innovation or have limited proficiency. Fourth, limited funds can lead to difficulty with adoption and usage. Finally, cultural factors such as forced adoption could affect staff morale and willingness to adopt the innovation (Dooley, 1999; Coates, James, & Baldwin, 2005). All these barriers, among others, may shape the attitudinal perspective of the users.

With reference to the implementation barriers of Dooley (1999), the current researchers anticipate that LMS users' attitude, adoption, technical support, and pedagogical advancement have been well dealt with due to influx and greater emphasis of LMS usage in many institutions nowadays, of which Saudi Arabian is not exempted. Aljaloud (2012) identified teacher and student specific barriers, content-specific barriers, school/administration/region-specific barriers, resistance to change, lack of technical staff for skills training in the technology, lack of availability/accessibility to hardware, and lack of effectiveness of the LMS software itself as barriers to implementing LMS in Saudi Arabian institutions. Although the barriers created by faculty members' lack of technical skills can be solved by designing appropriate LMS training courses which takes cognisance of contents, technology content acquisition alone is insufficient unless it is implemented and used successfully via personal experiences and display of positive attitude.

Theoretical framework

Two prominent theories drawn from Theory of Reasoned Action (TRA) of Fishbein and Ajzen (1975) were used to explain faculty members' adoption, attitude and use of LMS in the institutions.

Theory of Planned Behaviour

Fishbein and Ajzen (1975) indicated in Theory of Reasoned Action (TRA) that behavioural intentions are the immediate antecedents to behaviour. They divided the beliefs antecedent to behavioural intentions into two conceptually distinct sets or variables: behavioural and normative. The behavioural beliefs are postulated to be the underlying influence on an individual's attitude towards performing the behaviour (Ajzen & Fishbein, 1980).

In agreement with TRA, Theory of Planned Behaviour (TPB) proposed by Ajzen (1985; 2005) further explains how human action is guided and added a third variable to cater for deliberate behaviours. It postulates that an individual's intention to perform a behaviour depends on the attitude towards performing the behaviour (behavioural), the subjective norm (normative), and the perceived control of that behaviour. By definition of the three variables, attitude toward behaviour is viewed as one's "positive or negative evaluation of performing the behaviour of interest" (Ajzen, 2005, p. 118). Any LMS type proposed and adopted by the institutions requires individual faculty members to make their own judgements and based on the outcome of their evaluations, they will make an informed decision to use or not to use it. Subjective norm includes one's "perception of the social pressures to perform or not to perform the behaviour under consideration" (Ajzen, 2005, p. 118). It caters for the experiences the faculty members undergo due to whether their institution serves as a social pressure or not. When they feel that the institution encourages the use, they may be compelled to use them as well.

Perceived Behavioural Control is one's perceived ability to perform the behaviour of interest (Ajzen, 2005).

The latter includes an individual's perceived ease or difficulty of performing the particular behaviour which is determined by the total set of accessible controlled beliefs. This implies the presence or absence of factors that would inhibit or facilitate behavioural adaptation (Ajzen, 2005). Avraamidou (2013) classifies these factors as 'clusters of beliefs' or variables which when around a particular situation, they form attitudes that become action agendas and guide decisions and behaviours. Putting the three constructs together, a person intends to perform a behaviour when "he/she evaluate it positively, when he/she experiences social pressure to perform it and when he/she believe that he/she have the means and opportunities to do so" (Ajzen, 2005, p. 118). Thus an individual's attitude determines his/her intention which further shapes the actual behaviour (Fathema, Shannon, & Ross, 2015). The manner in which faculty members perceive themselves to have control over the technology types, such as the forms of LMS, matters. The perceptions they have concerning behaviour in terms of whether it is difficult to perform such behaviour and also if there are/ are not any challenges to overcome are influenced by their attitude.

Technology Acceptance Model

Davis's (1989) Technology Acceptance Model (TAM) is based on Ajzen and Fishbein's (1980) Theory of Reasoned Action (TRA), from which Ajzen's (1985) Theory of Planned Behaviour (TPB) also emerged. TAM explains technology acceptance and usage behaviours and hence offers an understanding of the behavioural intention factors relating to technology adoption which lead to appropriate usages. Davis (1989) argued in TAM that 'perceived usefulness' and 'perceived ease of use' are the two main variables that serve as factors to determine acceptance and use of a new technology. Perceived usefulness (PU) is "the degree to which a person believes that using a particular system would enhance his or her job performance", while perceived ease of use (PEOU) is defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989, p. 320). These two constructs of TAM as argued by Al-Harbi (2011, p. 34) "are antecedents to one's attitude" and therefore influences the user's intention toward using a particular technology. Prior studies have found TAM as a highly predictive model of technology adoption (Fathema et al., 2015; Cigdem & Topcu, 2015; Motaghian et al., 2013; Venkatesh & Bala, 2008; Ma, Anderson, & Streith, 2005), and hence relevant for LMS adoption and usage in this study.

TAM as well as TRA of Fishbein and Ajzen (1975) noted that external variables influence intentions to the extent that they affect either attitudes or subjective norms. Proper LMS usage is based on intentions of the faculty members which are linked to their expectations informed by external variables. External variables such as the institutional stands on LMS (provision and promotion to use approved type of LMS), age, personal experiences, resources organisation, exams running, social media, etc. are influenced by how faculty members perceive the systems to work for their advantage by yielding better results without struggling in its usage and implementation processes. How easy or difficult or how much effort to be put into using LMS and its effect on job output lead to attitudinal development, which further detect how the LMS will be adopted and used for its purposes. To pursue LMS integration in all pedagogical processes is necessary to enhance teaching in the institutions to benefit students with little effort in the implementation processes (Tsai & Chai, 2012; Lim & Pennen, 2012; DeLone & McLean, 2003). According to Mtebe and Raisamo (2014), perceived benefits cannot be realised if faculty members as instructors do not use LMS to enhance their courses. The manner in which LMS is

perceived and the reasons behind the choices will determine the impact factor of LMS use.

As TAM best demonstrates, technology usage is influenced by benefits and efforts (Fathema et al., 2015; Ndubisi, 2006; Davis, 1989). Studies have argued that for training courses on LMS to be delivered more effectively to meet the needs of their specific audiences, it is important that those who wish to conduct future training courses, understand the adoption strategies of the universities, their environment in which they are situated and the faculty members perceptions, concerns and attitude (Lim & Pannen, 2012; Bennett & Bennett, 2003; Antonacci, 2002; Roca, Chiu, & Martínez, 2006; Ong & Lai, 2006). Hence, while it is imperative LMS training courses are delivered to Saudi university faculty members to help them use LMS more effectively in their teaching activities, their attitude towards its usage is equally essential for boosting job performance with minimum effort.

RESEARCH QUESTIONS

- What relationship exists between LMS variables in relation to teaching activities?
- How do the variables relationship determine the Saudi Arabian university faculty members' use and attitude towards LMS for teaching purposes?

STUDY OBJECTIVE

The study's objective is to establish the relationship between variables to determine the faculty members' current use and attitude towards LMS in selected Saudi Arabian universities. The variables include the LMS perceived usages, training courses and design, institutional adoption, personal experiences, etc. The variables relationships will inform future LMS training courses and their implementations to find strategies that will maximise LMS adoption and usage in Saudi Arabian universities for teaching purposes.

RESEARCH METHODOLOGY

Involved universities

The six universities were purposively chosen to represent Saudi Arabian universities based on the following criteria: large and well regarded; well established, and regional or capital-city based.

The brief characteristics of the involved universities are as detailed: University 1 is a large institution and has many campuses, of which only the Bisha campus was involved in the study. In this campus, 4 out of its 10 colleges, namely education, science and arts, community as well as art and management colleges, were included in the study. University 2 is a large and recently established capital-city based university located in the east of the country. Four faculties out of over 21 were involved in the study. These were computer science and information technology, education, science and arts. The third university is located in the capital city Riyadh and is the oldest established university in Saudi Arabia. It is highly respected and regarded as one of the best universities in the country. University 4, which was also located in Riyadh, has only three faculties. Despite it being the smallest in terms of population, all the three faculties, namely computing and informatics, administrative, and financial sciences, were involved in the study to compare the larger universities. University 5 is located in Jeddah in the west. It is also well established and large with many faculties, whilst university 6 in Dhahran city is popularly known for its interest in learning systems implementation. It can be

argued that due to the characteristics of the universities, they form representation of Saudi Arabian universities.

Data collection method

To collect the data for this study, a survey employing questionnaire technique was used. This was in the form of an online administered self-complete questionnaire involving a series of questions administered via Google Drive. The structured questionnaire design was chosen as the best fit in relation to the purpose of inquiry because it provided the flexibility needed to assess different universities and faculty members' preferences for LMS that contain a high level of uncertainty based on their attitudes. After ethics approval was obtained, the authorised administrative staff from each of the six universities involved was contacted telephonically for the expectation of the questionnaire. The questionnaire inserted link and introductory letter sent via email to the authorised administrative staff were then forwarded to the faculty members. A total of 222 questionnaires administered were filled within 10 days and the data was exported as an Excel file and saved to a desktop computer. There was a substantial response rate and the participants responded to all sections of the survey, with less than 5% missing values in each of the sections of the questionnaire.

Survey instrument

The questionnaire consisted of five sections. The first section collected information about the faculty members' qualifications and computer skills. The second section elicited information on their attitude, age and personal experiences of using LMS in their institutions, and to pick a statement on how LMS is used in various teaching activities. In the third section, respondents were asked to choose the LMS type used in the institution currently, whilst the fourth section looked into the LMS training courses availability and how they are preferred. The fifth section solicited information on the preferred use and attitude towards LMS. In one subsection, respondents were asked to label various statements regarding LMS use and attitudes from 1-4 to indicate their order of importance. In another, they were to pick a statement on the LMS resources level of access, restrictions, etc. and to whom. Other subsections required respondents to choose options related to LMS preferred usages such as for assignments, projects, online tests, examinations, communication, feedback and many more. Use and attitude towards the LMS were captured using the items relationships from the sections.

Data analysis

The Excel file was transported to SPSS version 21 for analysis. A variety of statistical analyses were conducted; however, for this study, based on the aim of comparing use and attitude, cross-tabulation analyses reported in the form of bar graphs were conducted. This was necessary to test attitude and verify, for instance, how personal experience with LMS is related to generational differences in the respondents' ages. It also aimed to verify what LMS platforms Saudi university faculty members use in their teaching activities, and how different platforms affect their level of LMS personal experiences. For example, whether those who use Blackboard have a higher level of experience compared to those who use other types of LMS. In addition, chi-square test for association was performed to establish statistically significant associations between the six groups of variables. These include usage of LMS and generation, organising resources and restriction level of materials, online examinations on LMS and personal experience, etc. This was to determine whether the observed differences between groups did not arise by chance and to ensure there was statistical significance in the results (Field, 2005).

Regression analysis assumptions including normality and linearity were examined to check for violations and none was violated (Pallant, 2013; Tabachnick & Fidell, 2013).

KEY RESULTS

Demographics

Table 1 shows that out of 222 faculty members from the six selected universities in various faculties in Saudi Arabia who participated in the study, 54% were under the age of 40 years to form the younger generation, and 46% were older than 40 years who comprised the older generation. If the notion that the younger generations are more proactive in technology use is something to go by, then it may be assumed that majority of the younger faculty members may be using LMS than the older generation. 98 of the faculty members were males, 119 were females, and 5 did not disclose their gender. The participants provided a good representation of different academic backgrounds and over half of those recruited had a PhD ($n = 119$; 53.6%). The other faculty members had either obtained a bachelor ($n = 41$; 18.5%) or master's ($n = 57$; 25.7%) degree. This may indicate that significant numbers of the respondents have acquired the highest academic qualification and therefore have knowledge on LMS and its educational importance.

In addition, overwhelming majority of faculty members were employed on a full-time basis (86.9%). Those holding contract positions at the university accounted for 9.9% of the total sample, and part-time employees accounted for only 3.2% of the total sample to mean that there is job security and the faculty members were in position to utilise the LMS in the institution. 97.7% reported intermediate and advanced computer skills, with a small amount of beginners and non-users accounting only 2.3% of the total sample to indicate that computer related usages including LMS were not a challenge to faculty members.

Table 1. Distribution of respondents by age, gender, qualifications, and employment status and computer skills

| Variable | Distribution in percentages | | |
|-------------------|-----------------------------|---------------------------|---------------------------|
| Age | 54% form younger generation | 46% form older generation | |
| Gender | 44% Males | 54% Females | 2% did not specify gender |
| Qualifications | 53.6% PhD | 25.7% Masters | 18.5% Bachelors |
| Employment status | 86.9% Full-time | 9.9% Contract | 3.2% Part-time |
| Computer skills | 59.2% Advance | 38.5% Intermediate | 2.3% Beginner/Non-user |

Current use and attitudes towards LMS

In order to answer the two research questions, the relationship between variables of LMS concerning teaching activities were examined and linked to the faculty members' use and attitude as presented.

Relationship between usage of LMS and generation of faculty members

Figure 1 shows the relationship between LMS usage by faculty members as compared to the younger generation (younger than 40 years of age) and the older generation (older than 40 years of age). The older generation tends to use LMS for many more teaching activities (18.3%) than the younger generation (13.4%). The younger generation (33.6%) tends not to use LMS despite their universities providing them, in comparison to the older generation (20.4%). In addition, the older generation (12.9%) revealed that their universities do not provide adequate LMS for teaching purposes in comparison to younger generation (5%).

There seems to be a negligible difference between the older and younger generation in those who use LMS for some teaching activities as well as almost all teaching activities. Nevertheless, the data suggests that LMS is not used broadly in the Saudi Arabian universities for most teaching activities by both generations. This may be based on the attitudes of the faculty members towards LMS usage for certain teaching activities.

In addition, the result of a chi-square test for association performed between the generation of faculty members and the respondents' personal experience of using LMS for most teaching activities shows that the p value was greater than 0.05. There was no statistically significant association between the variables $\chi^2(4) = 2.485, p = 0.687$. This shows that both generations of the faculty members equally prefer not to use LMS in most of their teaching activities.

Personal experience and LMS type relationship

The relationship between the variables _ personal experiences of using LMS and the type of LMS used is shown in Figure 2. The data indicates that the most widely

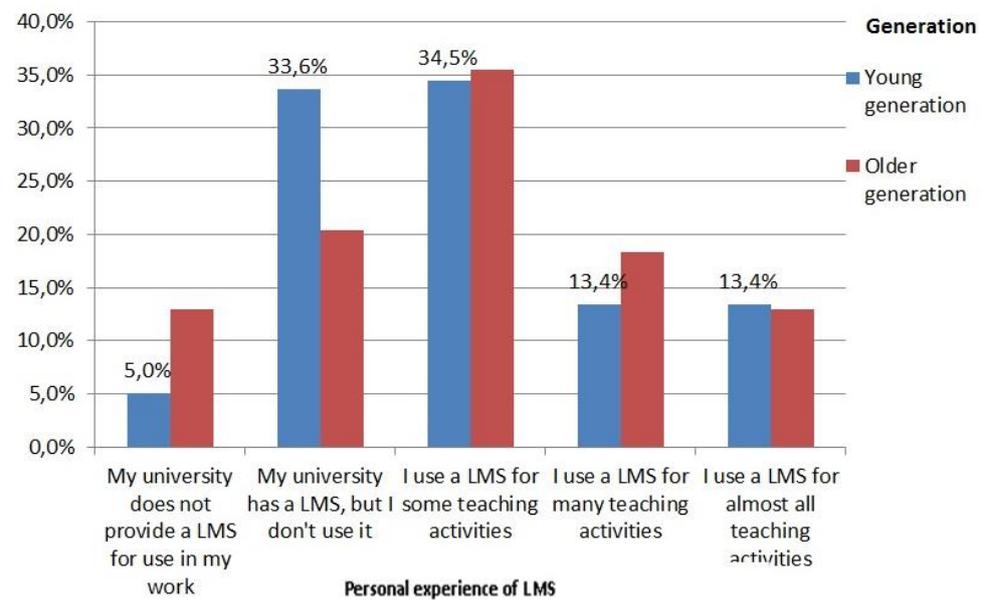


Figure 1. Personal experience of LMS * Generation of respondents

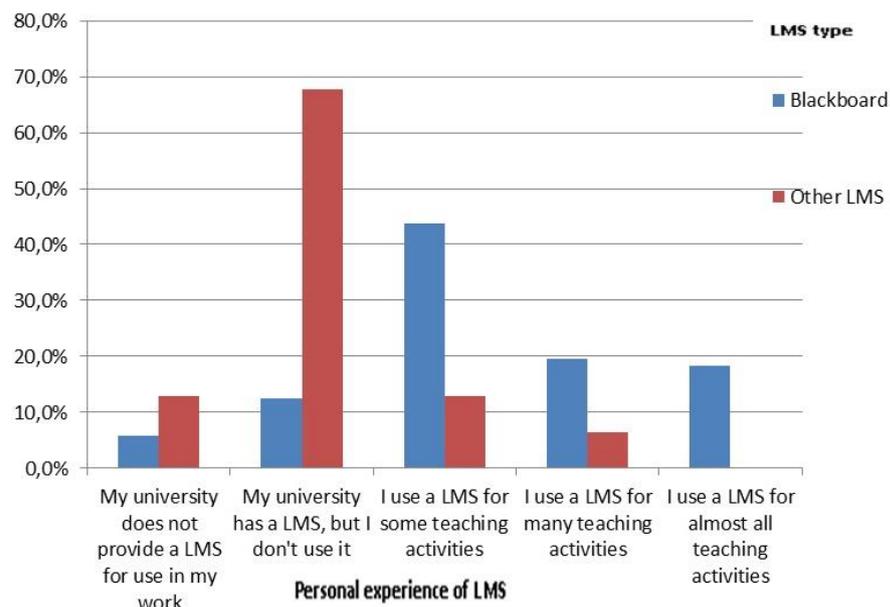


Figure 2. Personal Experience of LMS * LMS type

used LMS for teaching purposes was Blackboard, with 81.7% of respondents stating they use Blackboard to varying levels. The data suggests that it is widely accepted and used LMS in the universities for some teaching activities (43.8%). However, the evidence further suggests that 19.6% and 18.3% of the faculty members use LMS in the universities for many and most teaching activities respectively. Intriguingly, those who have LMS at their universities but do not use it for teaching were those who use LMS other than Blackboard (67.7%). From anecdotal evidence, it might seem that the broad acceptance of Blackboard in Saudi universities has led more faculty members to become earlier adopters due to the attitudinal acceptance of Blackboard over other LMSs.

A performed chi-square test for association between LMS type and the respondents' personal experience of using LMS indicated a statistically significant association between the variables $\chi^2(6) = 26.218, p = 0.018$. This shows that faculty members who do use LMS for teaching activities use Blackboard and those who do not use LMS for teaching activities use other LMS.

Relationship between LMS resource organisation and restriction levels

A LMS provides tools for organising resources/course materials such as course content, lecture notes, assignments and assessment tasks for a particular period, tutorial materials (among others) in various ways. These LMS organised resources in courses can be made available in various means. Figure 3 presents an interesting divide between those who prefer to have all LMS course materials organised in a consistent way compared to those who prefer a differentiated LMS course design where resources organised for specific courses. By applying cross-tabulating preferences for resources organisation via LMS and restriction level, it became clear that those who preferred materials organised in a consistent way for all courses/course designs also preferred to have their content resources to be freely available without restriction (40.4%). Alternatively, there were faculty members who preferred each course to have its own course materials organised via LMS and students offering that specific courses within the institution have access (32.9%). This may be due to the fact that faculty members who are more liberal with their resources are also likely to make their resources easier to access through a consistent format and to all. Conversely, faculty members who preferred a more tailored approach to their course materials also wanted them tailored according to the needs of their students alone.

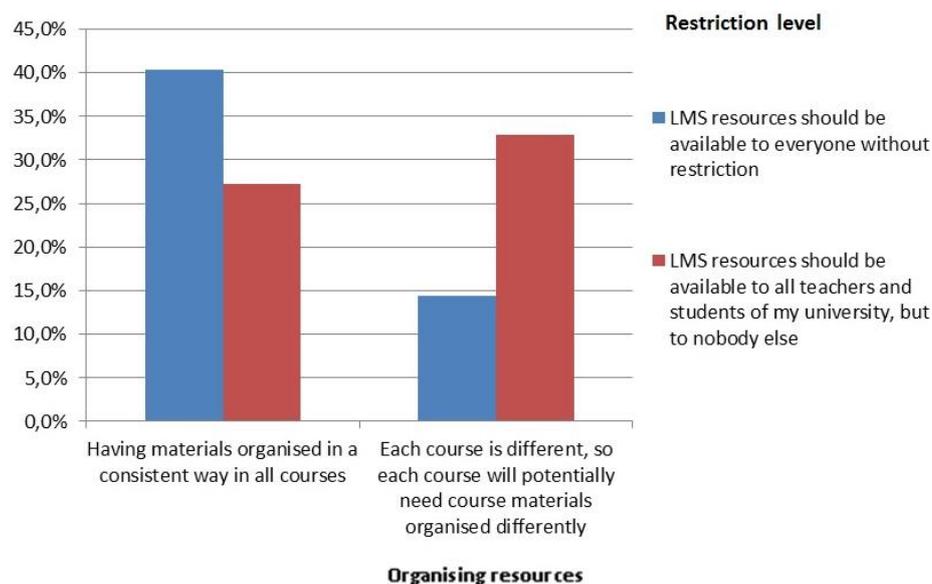


Figure 3. Organising resources * restriction level

Furthermore, a chi-square test for association was performed between organising resources on LMS and the restriction level of materials. Since the p value was less than 0.05, there was a statistically significant association between organising resources and restriction level $\chi^2(12) = 24.890, p = 0.015$. This further indicates that the faculty members who prefer all course materials in an organised and consistent manner do not expect those LMS resources/materials to be restricted. Those faculty members who expect LMS resources to be organised differently to suit individual courses prefer those materials to be restricted to those teaching and offering a particular course outside their institution.

Personal experience of LMS usage in relation to teaching handout availability

The preferences of availability of teaching handouts with respect to the personal experience of faculty members of LMS indicate that there was overwhelming support for teaching handouts to be made available to students before class, irrespective of LMS experience. However, there was a slight preference for those who use LMS for some of their teaching activities for handouts to be available only after the class had been delivered (27.5%). Furthermore, few faculty members (12.1%) who use LMS for many teaching activities want only the attendees to obtain teaching handout after classes. Thus, various attitudinal views exist across faculty members regarding the timing of issuing LMS teaching handouts and who should receive them.

In addition, a chi-square test for association performed between teaching handout availability on LMS and the personal experience of LMS indicated a p value of less than 0.05. There was a statistically significant association ($\chi^2(8) = 22.360, p = 0.031$) between the variables. This further confirmed that teaching handouts/materials are preferred to be made available to all students before lectures resume by the faculty members irrespective of their personal experiences in LMS usage.

Relationship between running exams and personal experience of LMS

Running online exams compared to faculty members' personal experiences in using LMS indicated that those who were not using LMS consider online examinations as very important (45.5%). There was a high percentage of faculty members who use LMS for many teaching activities that considered online

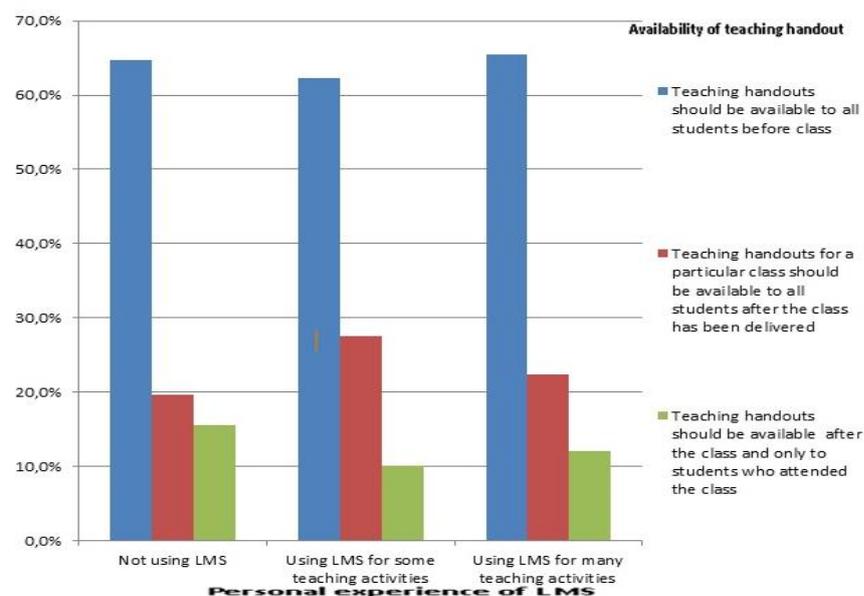


Figure 4. Personal experience of LMS * Availability of teaching handout

examinations important (24.1%). This suggests that there are attitudinal differences regarding online examinations for those who use LMS for many of their teaching activities compared with those who do not use LMS at all. In addition, respondents who considered running online examinations of neutral importance were the same for those who use LMS for many of their teaching activities and those who do not use it for their teaching activities with a percentage of 37.3%. Conversely, those who used LMS for some teaching activities consider it as less importance (44.2%) than those who use LMS for many teaching activities or do not use it at all. This highlights that there is still a level of suspicion, or at least caution, about running online exams on LMS.

Additionally, the result of a chi-square test for association performed between the preference for running online exams on LMS and the respondents' personal experience of using LMS. The p value was less than 0.05, and hence there was a statistically significant association between the preference for running online exams on LMS and the respondents' personal experience of using LMS $\chi^2 (4) = 11.560, p =$

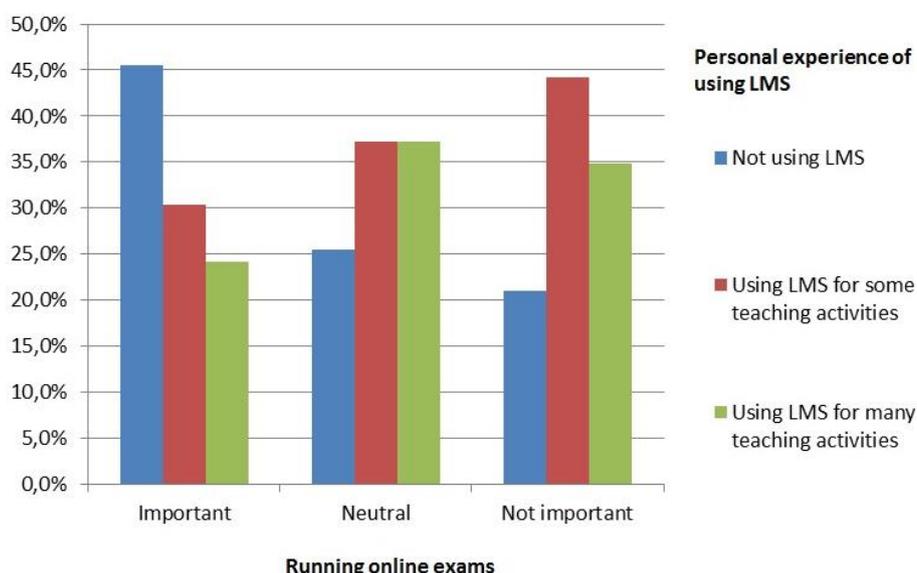


Figure 5. Running online exams * personal experience of LMS

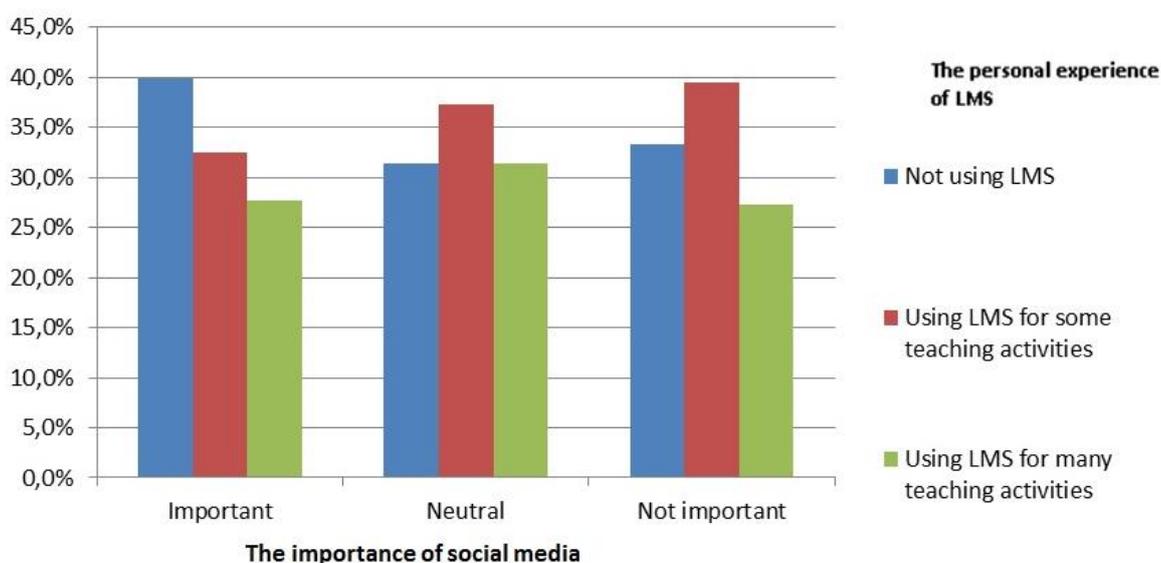


Figure 6. Running online exams * personal experience of LMS

0.021. Online examination seems to be much more important to the faculty members who are not using LMS than to those members who use LMS for some and many teaching activities.

Social media usage and personal experience of LMS relationship

Personal experience of using LMS in relation to the perceived importance of social media indicated that those who do not use LMS consider social media to be an important aspect (39.8%). Comparing this result with those who deemed social media as not important, the highest level of respondents came from those who use LMS for some of their teaching activities (39.4%). Furthermore, those who use LMS for many of their teaching activities showed similar results in considering social media not important (27.3%) and important (27.6%). This may be because those who use social media for their social life are already well accustomed to these technologies and believe that it might be beneficial in pedagogy. Moreover, it could also be considered a sociocultural element that some faculty members believe that social-media correspondence is not an important teaching element to be integrated within their teaching activities.

A chi-square test for association was performed between the importance of social media as a LMS tool and the respondents' personal experience of using LMS. The p value was less than 0.05, and hence there was a statistically significant association between the variables $\chi^2(4) = 12.860$, $p = 0.019$. This shows that social media appears to be much more important to the faculty members who are not using LMS than to those members who are using LMS for some teaching activities.

The data presented in the aforementioned six figures/graphs revealed the relationship between LMS variables with regards to teaching activities or purposes. The relationships shed light on the attitude of the faculty members' LMS usage.

DISCUSSIONS

This study set out to establish relationship between variables to determine the use and attitude of faculty members in the selected universities in Saudi Arabia. It adopted Ajzen's (1991) Theory of Planned Behaviour (TPB) and Davis's (1989) Technology Acceptance Model (TAM), both drawn from Fishbein and Ajzen's (1975) Theory of Reasoned Action (TRA), as theoretical frameworks. From the data, the chi-square of association performed on the variables revealed no significant relationship between LMS usage and generation of faculty members. However, statistically significant associations existed between faculty members' personal experiences of using LMS and the following variables: LMS types, teaching handout availability, preference of running online examinations, and social media as a LMS tool. Also statistically significant association existed between resource organisation and restriction levels. The essence is that institutions who consider implementing any type of LMS should understand how relevant variables relate, so that how the technology will be received, adopted and used as well as attitudinal relationships that the users may have with the technology could be ascertained.

From the findings, it was revealed that despite the older generation's usage of LMS for more teaching activities than their younger counterparts, there were negligible differences regarding attitude towards LMS use for some teaching activities as well as almost all the teaching related activities. Thus, there was no link between generation and the purpose of using LMS for most pedagogical interest in the institutions which may be as a result of harboured negative attitudes by faculty members. This is classified by Dooley (1999) and Tsai and Chai (2012) as a pedagogical barrier simply because ICT and its related attributes such as LMS are meant mainly for pedagogical advancement. Attitude was found to have strong impact on the intention of using e-learning and hence considered it as an important

factor that influences behavioural intention to use LMS purposively (Al-Siraihi Al-Harbi, 2011). In line with TAM as found by Al-Siraihi Al-Harbi (2011), perceived usefulness explained significant percentage of variance in perceptions. This may explain the reason why LMS is not fully adopted, implemented and used in most academic activities in the Saudi Arabian institutions irrespective of age.

Furthermore, as indicated by the older generation, there were institutions which still have not completely integrated or adopted LMS as compulsory practice in teaching activities. This is consistent with Hussein (2011) and Aljaloud's (2012) argument that lack of greater technical support (including LMS services provisions) in many Saudi Arabian universities affects greater LMS use for academic endeavours. A study done by Selim (2007) reported on the importance of the institutional role and support towards technological advancement, whilst Al-Siraihi Al-Harbi (2011) found that if universities have necessary equipments of e-learning and other access, users will be encouraged to use them. This implies that faculty members may be compelled to develop the intention of using LMS if their institutions place emphasis on their availability and use for greater academic purpose. Hence if some institutions do not provide the require LMS to faculty members towards pedagogy, they may not be in position to serve as social pressure to encourage faculty members to perform the behaviour under consideration with positive attitude (Ajzen, 2005). On the contrary, 'change resistance' exist as a barrier (Aljaloud, 2012; Hussein, 2011). This obstacle was manifested by the institutions which did not provide or encourage LMS usage, and faculty members (mostly the younger generation) whom despite the provision of LMS by their institutions decided not to utilise them based on ingrained attitudes towards LMS use. This form of barrier threatens the position on LMS in terms of its impact on successful implementation and suppresses the main purpose of using LMS to enhance effective teaching in the institutions.

However, Blackboard use was dominant and those using it had higher level of experience. They used it for some teaching activities as compared to other types of LMS such as JUSUR, moodle, etc. The greater adoption and use of Blackboard in the selected institutions signal positive attitude towards it, whilst negative attitude may exist with regard to other LMS types. This, according to Davis's (1989) argument in TAM, may mean that Blackboard was found to boost job performance, easier to fit and be used in some of the teaching activities, and hence faculty members have accepted to use it. Other studies have statistically identified the attitudes of faculty members towards LMS adoption to be influenced by key constraints such as personal, physical, and administrative (Kamal, 2013; Hussein, 2011; Reigeluth & Garfinkle, 1994). The implication is that any LMS promotion by the institution and course training should be geared towards maximising job output with minimum difficulty in usage for positive attitude enhancements. This is because individuals' positive or negative evaluation, as argued in TPB, after performing behaviour matters to encourage or hinder further use (Ajzen, 1991).

LMS was used to organise resources/materials for teaching in most of the universities studied. This implies that faculty members are aware of LMS usage to enrich course content and also agree with Mtebe and Raisamo's (2014) argument that perceived benefits would not be achieved without instructors embracing LMS in their courses. Hernandez-Ramos et al. (2014) regard ICT generally to serve as a tool for information processing and implicit learning content. The LMS resources were preferred to be either formatted in consistent order to cover contents of many courses or specifically organised for specific course. However, availability of organised material as found depends particularly on the faculty members' attitude towards the mode of the organisation and restriction. The faculty members who opted for consistent resource design for all courses also preferred those materials to be freely distributed without any form of restrictions. Other members preferred

tailor-made course materials for specific courses and be limited to concern members and students. This finding serves as a guide for institutions, LMS promoters and course trainers on resources organisation for course purposes and the degree of restriction.

The availability of handout notes prepared through LMS for students before class or lecture had been well supported regardless of LMS experience by the faculty members. Thus, even most of the members who do not prepare handouts via LMS for teaching support this option. This clearly indicates that faculty members have a positive attitude towards early handout distribution. The implication may be that students have ample time to interact with the materials and also have the opportunity to ask for clarity during lectures. Interestingly, those respondents who use handouts for some of their teaching activities rather preferred handouts to be made available after lessons have been delivered. Despite the preferences, the finding indicates that faculty members adhered to the functionality of LMS as a handout note making tool to complement teaching as emphasised by Asiri et al. (2012).

With regards to using LMS for online examination administration, it was the majority of the faculty members who do not use LMS that rather considered it to be important as compared to those who use LMS for some as well as many of the teaching activities. In other words, those members who use LMS for most of their teaching activities view its usage in online examination as unimportant compared to those who use LMS in some teaching activities and those who do not use LMS. This attitudinal difference is also well illustrated by Kamal (2013) who found that greater concerns persist in adopting online examinations and teaching materials by faculty members at King Abdul-Aziz University (KAU) in Saudi Arabia. This means that attitudinal differences displayed between those members who use LMS for most of their teaching activities, those who use it for many teaching activities, and those who do not concern using LMS have different preferences and viewpoints towards LMS used in online examination administration. Despite LMS's ability to offer students quick access to course information as well as examination questions from their lecturers at any point in time, as noted by Al-Busaidi and Al-Shihi (2010), negative attitude on LMS usage for examination purposes is still rampant. Prior studies found that instructors will be more likely to continue to use the system only if they consider it useful (Wang & Wang, 2007; Ma et al., 2005). It seems appropriate that the faculty members who use LMS consider online examination unimportant after evaluating it. It might mean that their negative experiences led to negative attitudes and that those who have not use LMS for online examination perceived it to be important to use it because they have not tried it to face such experiences/consequences. It is also in line with findings of Wang and Wang's (2007) study that perceived ease of use did not have significant direct effects on intention to use for a purpose. Furthermore, previous studies consider instructor previous experience as an important variable for evaluating user adoption of a new technology (Wang & Wang, 2007; Pituch & Lee, 2006).

LMS as a social media tool in relation to personal experiences of the faculty members revealed that it was rather those who do not use LMS that consider it important to be used in social media, whilst majority of those members who use LMS for some teaching activities as well as many teaching activities consider it unimportant to use it as a social media tool. This implies that various attitudes are developed towards LMS use as a social media tool. In support of Chan (2009), using LMS as social media tool serves as a platform for greater communication opportunities between lecturers and teachers. In addition, Govindasamy (2001) pointed out that LMS usage as a social media tool assists lecturers by providing a medium for assignment marking. Other studies view LMS as one of the important

web based innovations to blend online teaching and in-class teaching with learning process via various tools such as social media (Kamal, 2013; Coates et al., 2005). Yet, the faculty members who use LMS in the institutions for more and most teaching activities do not view social media as an academic platform and hence have a negative attitude towards it. This implies that LMS as a social media tool is not adequately adopted and used for pedagogical purposes. This may explain why studies argued that many faculty members expressed a personal negative sentiment about LMS being fashionable, luxurious or fun, or a combination of these (Hussein, 2011; Kamal, 2013; Asiri et al., 2012). Other studies have reported that instructors are not adequately interested in using LMS as an all out tool in all of their instructional practices (Cigdem & Topcu, 2015; Ma et al., 2005).

In this study, the relationships between the indicated variables to some degree revealed various forms of attitudinal differences among faculty members towards LMS use.

CONCLUSION

Based on the findings of the study, the authors conclude that attitudinal barriers exist which lead faculty members to entertain fear of LMS usage in most pedagogical arenas, irrespective of their known advantages. This was because few faculty members use LMS for most of their teaching related activities, while many others do not use LMS irrespective of their institutions providing them with such services. The younger generation attitude towards LMS usage differs from the older generations with regards to using LMS for some teaching activities. Hence, attitude towards LMS determines the purpose, type of LMS, the selection, as well as the rationale of the LMS adoption and use.

Divided views concerning using LMS to organise course resources without restriction and using it to prepare specific course materials with restriction cast doubt on how the faculty members expect LMS to be used and be made available in this regard. However, despite personal experiences with LMS, teaching handouts are endorsed to be made available to students before classes or lessons. This indicates a positive attitude since faculty members expect students to have greater chance to prepare and interact with the materials before attending class.

However, the faculty members who do not use LMS perceived it useful for online examinations as well as a social media tool, as compared to the attitude of those who use LMS for some and most teaching activities was worrisome. This revealed that high level of suspicion or caution about using LMS as a tool for online examination running and social media pedagogy influence its widely use by the faculty members who rather use LMS. This implies that lack of LMS usage towards pedagogical enrichments and negative attitude are based on individual context of faculty members (Garrate & Pettersson, 2007) and a university's stand on LMS prioritisation. TAM and TPB both demonstrate that intentions and attitude matters in technology acceptance, adoption and usage; hence LMS usage is influenced by faculty members' attitude. The attitude determines their intention which further shapes the actual behaviour (Fathema et al., 2015). Therefore, it is imperative that faculty members tune their attitude towards wider LMS usage in most of their teaching activities in order to tap into all the benefits of LMS in their various institutions for students' benefit. It is through this that effective teaching can be enhanced via LMS.

RECOMMENDATIONS

It was evident from the findings that the younger generation who could be anticipated to adopt a more positive attitude towards LMS usage in more of their

teaching related activities than the older generation, rather have greater measure of negative attitudes. Hence, it is recommended that designing of LMS training course for faculty members should be tailored towards the younger generation as it appears they have specific attitudinal and technological problems that require greater attention than the older generation. Therefore, age should be considered in delivering LMS training courses. However, any LMS training course should focus on prioritising content delivery aspects where faculty members could be able to adopt the LMS for teaching activities for pedagogical benefit.

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APPENDIX A: The questionnaire

Demographic Information:

1) What is your age?

- a) 20-30 b) 31-40 c) 41-50 d) 51-60 e) Over 60

2) What is your gender?

- a) Male b) Female

3) What is the highest level of education that you have completed?

- a) Bachelor b) Master c) PhD or over

4) What is your university employment status?

- a) Full time b) Part time c) Contract

5) How would you rate your skills as a computer user?

- a) Non-user b) Beginner c) Intermediate c) Advanced

Personal Experience of Using LMS:

1) Which statement best indicates how you use a LMS in your current teaching duties? Please, pick only one statement.

- a. My university does not provide a LMS for use in my work.
- b. My university has a LMS, but I don't use it.
- c. I use a LMS for some teaching activities.
- d. I use a LMS for many teaching activities.
- e. I use a LMS for almost all teaching activities.

2) Which of the following LMS do you currently use? Choose all that apply.

- a. Blackboard
- b. Moodle
- c. Desire2Learn
- d. Jusur
- e. Dokeos
- f. Other (please specify)

LMS Training Course:

1) If a training course in using a LMS were available at your university, what course format would you prefer to attend? Choose all that apply.

- a. I would be willing to attend a one-time 2-hour introductory course.
- b. I would be willing to attend a one-time half-day course.
- c. I would be willing to attend a series of 2-hour sessions over several days.
- d. I would be willing to attend a series of half-day sessions over several weeks.
- e. I would be willing to attend an intensive week-long training course.

1) In relation to the delivery of a proposed LMS training course, please indicate how strongly you agree or disagree with the following statements:

| | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |
|---|----------------|-------|---------|----------|-------------------|
| a. The course should be delivered by people familiar with my university's teaching programs and practices. | | | | | |
| b. The course should be delivered by educational experts familiar with the capabilities of the LMS. | | | | | |
| c. The course should be tailored to the abilities of attendees, with separate courses for beginners, intermediate users, and experienced users. | | | | | |
| d. The course should include hands-on exercises to provide familiarity with the specific operation of the LMS. | | | | | |
| e. The course should provide an opportunity for participants to discuss potential use of the LMS with other teachers. | | | | | |

Preferred use of LMS:

2) A LMS includes facilities to help teachers in various aspects of their work. Please label the following activities from 1-4 to indicate the order of importance you assign using a LMS to assist with each activity, with 1 indicating the most important activity and 4 the least important.

3)

| | |
|---|--|
| a. Course administration (managing class information, tracking student activities). | |
| b. Teaching delivery (providing materials and resources to students) | |
| c. Student testing (assessing and evaluating students). | |
| d. Class communication (communicating and collaborating with students). | |

4) Depending on how it is set up, the facilities provided by a LMS for a particular course can be restricted so that they are available only to authorised people. Which of the following statements best indicates the level of access you believe should apply for LMS resources in courses you teach? Please, pick only one statement.

5)

| | |
|---|--|
| a. LMS resources should be available to everyone without restriction. | |
| b. LMS resources should be available to all teachers and students of my university, but to nobody else. | |
| c. LMS resources should be available to all teachers and students in my college, but to nobody else. | |
| d. LMS resources should be available to all teachers of my topics and students enrolled in my topics, but to nobody else. | |
| e. LMS resources should be available only to students who are enrolled in my topics. | |

6) A LMS provides tools for organising resources in various ways. For example, all of the teaching handouts, activities, and assessment tasks for a particular week's classes could be grouped together. Or perhaps lecture notes could be grouped in one folder, tutorial materials in another, and assignments in yet another. Which of the following statements best describes your thoughts about how decisions about such matters should be made? Please, pick only one statement.

| | |
|---|--|
| a. Having materials organized in a consistent way in all courses a student studies will help students to be able to quickly find what they need. | |
| b. Each course is different, so each course will potentially need course materials organised differently. I would prefer to be able to choose the best organisation for my own courses. | |
| c. As a teacher, my job is to prepare and deliver the teaching materials. It should be someone else's job to decide how they are organised in a LMS. | |
| d. The arrangement of materials does not matter much. Students are generally able to find the materials they need no matter how the materials are organised. | |

7) Which statement best indicates your preference for when (or if) teaching handouts should be made available on a LMS?

| | |
|--|--|
| a. Teaching handouts should be available to all students before class. | |
| b. Teaching handouts for a particular class should be available to all students after the class has been delivered. | |
| c. Teaching handouts for a particular class should be available only after the class has been delivered and only to students who attended the class. | |
| d. Teaching handouts should not be made available to students. | |

8) A LMS provides tools that can be used to assess student understanding and provide feedback about their performance. Please indicate how important you think a LMS is for the following assessment-related tasks? Please choose one option for each statement.

| | Very important | Important | Neutral | Not important | Not important at all |
|---|----------------|-----------|---------|---------------|----------------------|
| a. Distributing specifications for take-home activities such as assignments and projects. | | | | | |
| b. Allowing students to submit assignment and project work. | | | | | |
| c. Providing feedback about student performance in submitted work. | | | | | |
| d. Preparing and running online tests and quizzes. | | | | | |
| e. Preparing and conducting on-line exams. | | | | | |
| f. Allowing students to review their marks to verify accuracy before finalising results. | | | | | |

9) A LMS provides a variety of ways for lecturers to communicate and collaborate with their students about topic information. Please indicate how important you think an LMS is for the following communication tasks. Please choose one option for each statement.

| | Very important | Important | Neutral | Not important | Not important at all |
|--|----------------|-----------|---------|---------------|----------------------|
| a. Reminding students when assignments and other assessment tasks are due. | | | | | |
| b. Posting class notices such as hints about how to complete an assessment activity. | | | | | |
| c. Broadcasting important announcements such as updates to assignment specifications or due dates. | | | | | |
| d. Establishing a forum for discussion about questions that arise in class activities. | | | | | |
| e. Integrating social media tools such as Facebook or Twitter into class activities. | | | | | |